DRAFT

Additional Information EPA Will Need from Sierra Pacific Industries-Anderson Division to Proceed with a voluntary GHG PSD Permit

EMISSION ESTIMATES

1. In addition to the information provided in Table 2-1 in the Sierra Pacific Industries's (SPI) June 2011 Best Available Control Technology (BACT) analysis for greenhouse gas (GHG) emissions:

   a. GHG emission estimates and calculations (and assumptions used in these calculations) for each of the new and modified emission units (e.g., biomass boiler, emergency engine, circuit breakers,etc) for (1) maximum worst case annual emission estimates of GHG pollutants (i.e., CO_2e, CO_2, N_2O, CH_4, SF_6,etc) expected from the emission units in tons per year (tpy); Revised and expanded Table 2-1

   b. Emission estimates of GHG pollutants expected during startup periods, shutdown periods, and normal operation expected from the emission units in tpy; and Added explanatory text

   c. Emission estimates of GHG pollutants for existing equipment at the facility in tpy. Added Table 2-2

GHG BACT ANALYSIS

1. An assessment of the use of stoker and fluidized bed boiler in the design of the cogeneration unit for minimizing GHG emissions. For your information, EPA's combined heat and power (CHP) website has information on biomass conversion technologies, and includes information on stoker and fluidized bed boilers that may be useful.[1] Added explanatory text

2. A GHG assessment of any new circuit breakers that potentially emit SF_6 in the GHG BACT analysis. Added explanatory text; existing circuit breakers will remain and be used by proposed cogeneration unit, therefore, no evaluation is needed

3. A GHG assessment of the proposed natural gas-fired 256 horsepower emergency engine. Added section 8

4. An assessment that considers GHG BACT determinations made for other biomass boiler units. We are aware of the following projects in Table 1 that have been evaluated and issued final permits with GHG emission and operational limits. Obtained and reviewed permit materials for all facilities in table below, added text briefly summarizing findings

[1] See the section titled "Biomass CHP Catalog of Technologies" at [HYPERLINK "http://www.epa.gov/chp/technologies.html"].

Table 1: Recent Permit Decisions containing GHG Determinations

Facility	State	Permit Issuance Date
Montville Power LLC	CT	4/6/2010
Beaver Wood Energy Fair Haven LLC	VT	2/10/2012
North Springfield Sustainable Energy Project	VT	4/19/2013
WE Energies (Rothschild facility)	WI	3/28/2011
Abengoa Bioenergy Biomass of Kansas LLC	KS	9/16/2011 (Effective date)

5. An evaluation of the technical feasibility of using carbon adsorption in Section 4. Section 3.2 identifies carbon adsorption as a potential control technology for minimizing methane emissions. Added clarifying text

6. An evaluation of the technical basis that explains why thermal oxidation is not technical feasible for the boiler. Section 4.2, under Thermal Destruction, eliminates thermal oxidation as technically infeasible for control of methane from the boiler because "it is not clear that use of such system would result in a net reduction in methane." Added clarifying text

7. An evaluation of the technical basis that explains why non-selective catalytic reduction (NSCR) is not feasible for the boiler. Section 4.3, under Non-Selective Catalytic Reduction Systems, eliminates NSCR as technically infeasible for control of nitrous oxide from the boiler because "significant differences exist between the exhaust from adipic and nitric acid operations and that of a biomass-fired boiler, it is not clear that the technology could be transferred effectively." It would be helpful if SPI would explain these differences. Removed text to jibe with determination that NSCR was not technically feasible, also added clarifying text

8. Emission calculations (and assumptions used) for the estimates of "percent reduction in emitted GHGs on a CO_2e basis" in section 5 of the analysis. This is currently not provided in the analysis. Added references and reduction calculations

9. Cost calculations (and assumptions used) for the estimates of "percent reduction in emitted GHGs on a CO_2e basis" in section 6 of the analysis. This is currently not provided in the analysis. Biomass Fuel Use – no cost calculation needed; CCS – referenced cost calculation from NETL document; Catalytic Destruction – calculated cost threshold from calculated potential reduction and value of CO_2e reduction; Removal of SNCR System – unacceptable from environmental standpoint, so no cost calculation needed; Proper Combustion/Energy Efficiency – no cost calculation needed

10. A proposed annual CO_2e emission limit in tpy for the proposed project. Proposed GHG BACT limit (annual tpy) provided